CLAIMS

1. Method for coding a picture sequence comprising a hierarchical temporal analysis (1) of a group of pictures performing a motion compensated temporal filtering of successive pairs of pictures (11) to supply low temporal frequency pictures and high temporal frequency pictures at different temporal decomposition levels, this analysis realizing, for a given temporal decomposition level and for a pair of low temporal frequency pictures, a motion estimation step (8) of a current picture B to a previous reference picture A to supply motion vectors then a motion compensated temporal filtering (11) of these pictures to supply a low temporal frequency picture (L) and a high temporal frequency picture (H) at a greater decomposition level, the said temporal filtering being replaced by an intra mode (16, 17) coding to obtain at least one low (L) or high (H) frequency picture if the current picture has a level of correlation with a previous picture lower than a threshold (10, 15), the low frequency pictures (L) obtained being thus scaled to be adapted, at the energy level, to the pictures obtained by the said motion compensated temporal filtering, characterized in that, among the low frequency picture and the final high frequency decomposed pictures obtained at the end of the analysis:

- it selects the pictures obtained by intra coding of a picture at a lower decomposition level with the additional condition, for the high frequency pictures, that this picture is derived itself from an intra coding.

- it calibrates the selected picture by carrying out at least one reverse step of the scaling step.

2. Method according to claim 1, characterized in that the number of reverse steps carried out corresponds to the number of successive intra coding operations of a low frequency picture (L) to arrive at the picture selected if this involves a high frequency selected picture, this number being increased by one if it involves the low frequency selected picture (L).

3. Method according to claim 2, characterized in that it comprises, for the calculation of a low L or high H frequency image, a temporal filtering between the current picture and a following picture (16) of the following pair of pictures, if the correlation between the current picture and the previous picture is lower than a threshold (10) and if the correlation between the current picture and this following picture is greater than a threshold (15), the other H or L picture being obtained by intra coding (16) and in that this filtering operation is assimilated with the intra coding and not with the temporal filtering for the selection step.

4. Method according to claim 3, characterized in that it assigns a picture number to each picture of the group of pictures, and in that it monitors these numbered pictures during the decomposition by attributing a counter for each number, this counter being updated at each step:

- the counter is increased each time a low frequency picture (L) is obtained in intra mode,

- the counter remains unchanged each time a high frequency picture (H) is obtained in intra mode or during a temporal filtering with a following picture,

- the counter is reset each time a picture is obtained by motion compensated temporal filtering with a previous picture,

5. Method according to claim 1, characterized in that the high frequency pictures H and low frequency pictures L are obtained, during the motion compensated temporal filtering of two successive pictures A and B, from the following operations:

$$\begin{cases} A = \dfrac{L - MC_{A \leftarrow B}(H)}{\sqrt{2}} \\ B = \sqrt{2}.H + MC^{-1}_{A \leftarrow B}(A) \end{cases}$$

MC corresponding to the motion compensation according to the B to A motion vector field, of the picture H.

6. Method according to claim 5, characterized in that the pictures L and H are obtained, from intra coding, according to the formulas

$$\begin{cases} H = B \\ L = \sqrt{2}.A \end{cases}$$

and in that the pictures H and L are obtained by filtering with the following picture for H and by intra coding for L, according to the following formulas:

$$\begin{cases} H = \dfrac{B - MC_{B \to C}(C)}{\sqrt{2}} \\ L = \sqrt{2}.A \end{cases}$$

MC corresponding to the motion compensation according to the B to C motion vector field, of the picture C.

7. Method according to claim 1, characterized in that the calibrated pictures obtained by temporal analysis (1) are then processed by spatial analysis (3).

8. Method according to claim 1, characterized in that the level of correlation is calculated by taking into account the number of connected pixels, that is, connected by a motion vector.

9. Decoding method of a sequence of coded images according to the process of claim 1, characterized in that it implements a reverse calibration step (21) of selected pictures to be decoded, the selection of the pictures and the number of reverse steps being dependent on an element of information associated with the picture to be decoded.

10. Method for the decoding of a sequence of coded images according to the process of claim 4, characterized in that it implements a reverse calibration step (21) of selected pictures to be decoded, the selection and the number of reverse steps being a function of the value of a counter assigned to the picture during the coding.

11. Coder for the implementation of the method according to claim 3, comprising a temporal analysis circuit (1) using the motion compensated temporal filtering and the intra coding, characterized in that the circuit selects, among the low frequency picture and the final high frequency decomposed pictures obtained at the end of analysis, the pictures obtained by an intra coding of a picture at the lower decomposition level or by a temporal filtering between the picture of a pair of pictures and the following picture of the following pair of pictures at the lower decomposition level, with the additional condition, for the high frequency pictures, that this picture is derived itself from an intra coding and in that it carries out at least one reverse step of the scaling step for the pictures selected.

12. Decoder for the decoding of sequences of images according to the process of claim 1, comprising a temporal synthesis circuit (21), characterized in that the circuit comprises means to perform a reverse calibration of pictures to be decoded, the selection of images and the number of reverse calibrations being dependent on an element of information associated with the picture to be decoded and received by the decoder.